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to simultaneously achieve optimum sensitivity, dynamic range, and MMA which are essential for the analyses of complex biological samples relevant to high throughput proteomic research.

CLOSURE

While a preferred embodiment of the present invention has been shown and described, it will be apparent to those skilled in the art that many changes and modifications may be made without departing from the invention in its broader aspects. The appended claims are therefore intended to cover all such changes and modifications as fall within the true spirit and scope of the invention.

We claim:

1. A multi-source ion funnel for introducing ions from a region at relatively high pressures to a region at relatively low pressures comprising:

- a. at least two sets of primary elements having apertures, each set of elements having a receiving end and an emitting end, said first sets of elements configured to receive a ions from at least two separate ion sources at said receiving ends, and
- b. a secondary set of elements having elements having a receiving end and an emitting end, said secondary set of elements configured to receive said ions from the emitting end of said primary sets of elements, said primary elements and said secondary elements configured to have a voltage applied to said said primary elements and said secondary elements.

2. The multi-source ion funnel of claim 1, further comprising at least one jet disturber positioned within the interior of at least one of said sets of primary primary elements.

3. The multi-source ion funnel of claim 2, further comprising a means for providing a voltage in said jet disturber.

4. An apparatus for introducing ions into a mass spectrometer comprising:

- a. at least two electrospray ion sources,
- b. at least two capillary inlets, and
- c. the multi-source ion funnel of claim 1, wherein each of said electrospray ion sources is configured to direct ions generated by said electrospray sources into and through each of said capillary inlets, and said capillary inlets are further configured to direct said ions into the receiving end of said sets of primary elements.

5. The apparatus of claim 4 further comprising at least one jet disturber positioned within at least one of said sets of primary elements.

6. The apparatus of claim 4, further comprising a means for providing a voltage in said jet disturber.

7. A method for introducing ions into a mass spectrometer comprising:

- a. providing at least two electrospray ion sources,
- b. providing at least two capillary inlets configured to direct ions generated by said electrospray sources into and through each of said capillary inlets,
- c. providing at least two sets of primary elements having apertures, each set of elements having a receiving end and an emitting end, said primary sets of elements configured to receive a ions from said capillary inlets at said receiving ends, and
- d. providing a secondary set of elements having apertures having a receiving end and an emitting end, said secondary set of elements configured to receive said ions from the emitting end of said primary sets of

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elements and emit said ions from said emitting end of said secondary set of elements, said primary elements and said secondary elements configured to have a voltage applied to said primary elements and said secondary elements.

8. The method of claim 7 further comprising the step of providing at least one jet disturber positioned within at least one of said sets of primary elements.

9. The method of claim 8, further comprising the step of providing a voltage in said jet disturber, thereby adjusting the transmission of ions through at least one of said sets of primary elements.

10. The method of claim 9 wherein the voltage provided in said jet disturber is a dc voltage.

11. The method of claim 9, wherein the step of adjusting the transmission of ions through at least one of said sets of primary elements prevents the transmission of ions through at least one of said sets of primary elements.

12. The method of claim 9 wherein the applied voltage is applied intermittently, thereby providing intermittent disruption of the ions through at least one of said sets of primary elements.

13. The method of claim 10 wherein the applied voltage is applied intermittently as a square wave form, thereby providing intermittent disruption of the ions through at least one of said sets of primary elements.

14. The method of claim 8 wherein a jet disturber is provided within each of at least two of said primary elements.

15. The method of claim 14, further comprising the step of providing a voltage in said jet disturbers, thereby adjusting the transmission of ions through at least two of said sets of primary elements.

16. The method of claim 15 wherein the voltage provided in said jet disturbers is a dc voltage.

17. The method of claim 15, wherein the step of adjusting the transmission of ions through at least two of said sets of primary elements prevents the transmission of ions through at least two of said sets of primary elements.

18. The method of claim 15 wherein the applied voltage is applied intermittently, thereby providing intermittent disruption of the ions through at least two of said sets of primary elements.

19. The method of claim 18 wherein the applied voltage is applied intermittently as a square wave form, thereby providing intermittent disruption of the ions through at least two of said sets of primary elements.

20. The method of claim 18 wherein the voltage applied intermittently is alternated between the jet disturbers, thereby alternating the disruption of the transmission of ions through at least two of said sets of primary elements.

21. A method for introducing calibrant ions and analyte ions into a mass spectrometer comprising:

- a. providing two electrospray ion sources, one for providing calibrant ions, and the other for providing analyte ions,
- b. providing two capillary inlets configured to direct ions generated by said electrospray sources into and through each of said capillary inlets,
- c. providing two sets of primary elements having apertures, each set of elements having a receiving end and an emitting end, one of said primary sets of elements configured to receive a ions from said capillary inlets at said receiving ends, and
- d. providing a secondary set of elements having apertures and having a receiving end and an emitting end, said secondary set of elements configured to receive said